1904MNRAS..64..523.

U. S. C. & G. SURVEY,
LIBRARY AND ARCHIVES.
MAY 31 1904
Acc. No.

MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. LXIV. APRIL 8, 1904. No. 6

Professor H. H. TURNER, D.Sc., F.R.S., PRESIDENT, in the Chair.

John Borthwick Dale, M.A., Assistant Professor of Mathematics, King's College, London; "Myosotis," New Malden, Surrey;
Rev. William Charles Eppstein, Reading School, Berks;
Walter Nuttall, B.A., Hallfold School, Whitworth, Rochdale, and
William Edward Rolston, Solar Physics Observatory, South Kensington, S.W.;

were balloted for and duly elected Fellows of the Society.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended:

Edward Barlow, Harewood, Andover, Hants (proposed by Major P. A. MacMahon);
Otto J. Klotz, Astronomer, Department of the Interior, Ottawa, Canada (proposed by W. H. M. Christie);
Major C. Leigh-Lye, 15 Mayfield Avenue, Chiswick, W. (proposed by A. C. D. Crommelin).

The following were proposed by the Council as Associates of the Society:

Henri Deslandres, D.-ès-Sc., F.R.A.S., Observatoire d'Astronomie Physique, Meudon, S.-et-O., France;
C. D. Perrine, Lick Observatory, Mount Hamilton, California, U.S.A.;
George W. Ritchey, Yerkes Observatory, Williams Bay, Wisconsin, U.S.A.

Downloaded from http://mnras.oxfordjournals.org/ at NERL on May 13, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1904MNRAS..64..523.

Seventy presents were announced as having been received since the last meeting, including, amongst others :

Annales de l'Observatoire de Meudon—Atlas de Photographies Solaires, presented by M. Janssen ; Observatoire d'Alger, Catalogue Photographique du Ciel, 3 fascicules ; and Introduction by Ch. Trépied, presented by the Observatory ; G. E. Hale and F. Ellerman (&c.), The Rumford Spectroheliograph of the Yerkes Observatory, and Spectra of Stars of Secchi's fourth type, presented by Professor Hale ; E. B. Frost and W. S. Adams, Radial Velocities of Stars of the *Orion* type, presented by Professor Frost ; S. W. Burnham, Measures of Double Stars, presented by the Author ; Tokyo Observatory, Annales, tomes 2, 3 (with report of Solar Eclipse of 1901), presented by the Observatory.

On the Degree of Accuracy of the new Lunar Theory and on the Final Values of the Mean Motions of the Perigee and Node.

By Ernest W. Brown, Sc.D., F.R.S.

In the *Monthly Notices* for 1903 May I gave a general statement of the degree of precision existing between the calculated values of the mean motions of the perigee and node and their observed values. It was added that the final verifications of the higher terms due to solar action were not complete, but an upper limit was given for possible errors. Since that date the calculations for these higher terms have been tested and found to be correct, so that the portions due to solar action are completely finished, and the portion arising from each characteristic is calculated to $0''\cdot01$ in the annual motions.

In order to make the comparison complete to this degree of accuracy it was found necessary to undertake an examination into the numerical values of the constants used and into the effects produced by sources other than the direct solar action. This inquiry revealed several differences which had a perceptible effect. It was first necessary to develop a general method of dealing with the effects of planetary and other perturbations on these mean motions which would permit of their being found easily and accurately. Two methods for the solution of this problem were obtained ; they will be published elsewhere,* the numerical results only being given here. It was found necessary to make several changes in the values of these non-solar perturbations as collected in my papers in the *Monthly Notices* for 1897 March and June : four of these caused alterations of about half a second each in the annual motions. First, in multiplying the ratios of the motions to n—ratios which were found correctly from theory—by n (the mean motion), it was found that a

---

* *Trans. Amer. Math. Soc.* July 1904.

Downloaded from http://mnras.oxfordjournals.org/ at NERL on May 13, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System